

UNIT III – APPROACHES OF TEACHING

CONCENTRIC METHOD

This method implies breaking up of topic into different subtopic and the portion is allotted to different grades. This is a system of organising a course rather than a method of teaching. It is, therefore, better to call it concentric system or approach. It implies widening of knowledge just as concentric circles go on extending and widening. It is a system of arrangement of subject matter. In this method the study of the topic is spread over a number of years. It is based on the principle that subject cannot be given an exhaustive treatment at the first stage. To begin with, a simple presentation of the subject is given and further knowledge is imparted in following years. Thus beginning from a nucleus the circles of knowledge go on widening year after year and hence the name concentric method.

Procedure

A topic is divided into a number of portions which are then allotted to different classes. The criterion for allotment of a particular portion of the course to a particular class is the difficulty of portion and power of comprehension of students in the age group. Thus it is mainly concerned with year to year teaching but its influence can also be exercised in day-to-day teaching Knowledge being given today should follow from knowledge given yesterday and should lead to teaching on following day.

Merits of Concentric Method

(i) This method of organisation of subject matter is decidedly superior to that in which one topic is taken up in particular class and an effort is made to deal with all aspects of the topic in that particular class.

(ii) It provides a framework from course which is of real value to students.

(iii) The system is most successful when the teaching is in hand of one teacher because then he can preserve continuity in the teaching and keeps his expanding circle concentric.

(iv) It provides opportunity for revision of work already covered in a previous class and carrying out new work.

(v) It enables the teacher to cover a portion according to receptivity of learner.

(vi) Since the same topic is learnt over many years so its impressions are more lasting.

(vii) It does not allow teaching to become dull because every year a new interest can be given to the topic. Every year there are new problems to solve and new difficulties to overcome.

Drawbacks

For the success of this approach we require really capable teacher. If a teacher becomes over ambitious and exhausts all the possible interesting illustrations in there introductory year then the subject loses its power of freshness and appeal and nothing is left to create interest in the topic in subsequent years.

In case the topic is too short or too long then also the method is not found to be useful. A too long portion makes the topic dull and a too short portion fails to leave any permanent and lasting impression on the mind of the pupil.

TOPICAL METHOD

In this method a particular topic is started in a particular grade and finished over there only. Thus topic marked for particular grade must not be touch in other grade. The selected topic becomes the centre of correlation. It is opposite of concentric method. Concentric method involves the breaking up of a topic into suitable portions, whereas topical method aims at keeping it intact. In topical method a topic is taken as unbreakable unit. It is based on the principal that any topic when begun should not be left half done. It should be finished in its entirety, before the next topic is taken.

PROCEDURE

‘Topical method’ is more a system of arrangement of subject matter than a method of teaching. Its adoption depends on a suitable organization of the syllabus. The topic is to be taught at as stretch, without a break or a gap. The other approach to this method is that a topic is selected and is made the basis many other topics. The selected topic becomes the centre of correlation.

For example: While dealing with the Unitary method, the students can be acquainted with time and work, simple interest, average, percentage and even extended to simple equation of algebra.

Merits of Topical method:

1. Continuous teaching of topic not only save the student from divided attention, but may ensure their full and whole – hearted concentration on the topic. A natural link and sequence will exist in the day today work in class room. The student’s complete attention, ability and capacity will be directed exclusively to the topic under study for a sufficiently long time.

2. When a topic is treated as centre for other topic, it facilitates the learning process. It illustrates the advantage of correlation.

Drawbacks of Topical methods

1. Keeping psychological reason in view, it will be foolish to take a topic like area in grade 4 and try to finish in at one stretch. The student may be able to understand the elementary portion, but will certainly not be able to attempt its most difficult question.
2. The interest of the student may go away within a month, if we focus on only on a particular topic.
3. This method does not provide any opportunity for year to year revision.

Introduction of lesson planning

Planning is essential in any sort of activity and more so when a teacher is going to a classroom for teaching a subject. Especially for a science teacher, it is absolutely essential that he plans the topic well in advance so as to make his teaching interesting and efficient by organizing simple demonstration experiments and other activities. After all science is doing and children should learn science as a fun. Teachers should avoid reading the science text book in class room. Planning helps the teacher in systematic presentation of subject matter. The teacher has to plan every step and should go to the classroom with a written plan.

Effective lesson planning requires the knowledge of the physiological developments and the intellectual maturity of the students. It also requires knowledge about the needs, interests and abilities of the students. The knowledge of psychology of learning, principals of teaching, previous knowledge of the students, and effective mastery of the subject matter are essential for lesson planning. A lesson plan demands sufficient experience of the teacher to plan classroom activities to develop understanding, interest,

aptitude and skill of students in addition to the scientific knowledge in all its aspects- scientific terms, facts and principals ideas and concepts. In a lesson plan there should be scope for creative activities by the students and should provide opportunity for critical thinking. How to prepare such a plan is discussed in this unit.

LESSON PLANNING

Different teaching methods are available for teaching science and all these methods are discussed in an earlier unit. Similarly various teaching aids are available for transacting the curriculum. Before going to the classroom the teacher has to select the appropriate method for teaching the topic and also the proper teaching aid which will help the learner to understand the concepts in the topic. This is sometimes called planning the strategy.

The lesson plan stimulates the teacher to think in an organized manner. It helps the teacher to outline the objectives properly.

- The lesson plan helps in creating the interest of pupils towards the lesson.
- A proper correlation is established between the new and old lesson.
- The lesson plan provides guidance to the teacher as to what and how he should teach.
- This compels the teacher to think about using teaching aids.
- This helps the teacher to choose the best teaching method.
- The lesson plan inspires the teacher to ask proper and important questions.
- This helps the teacher to teach, keeping in the mind the individual differences.
- The subject matter is organized in a time frame and with proper sequence.
- This develops self-confidence in the teacher.
- This helps the teacher in evaluating his teaching.

Definition of Lesson Plan

Bossing defines, "A lesson plan is an organized statement of general and specific goals together with the specific means by which these goals are to be attained by the learner under the guidance of the teacher on a given day."

In the words of Lester B. Stands. "A lesson plan is actually a plan of action. It includes the working philosophy of the teacher, his knowledge of philosophy, his knowledge about students, objectives, material to be taught and his ability to utilize effective methods."

Like a dexterous craftsman a teacher should plan his tools and techniques, which may help him in moulding his materials that is students in the right way. In other words, it is a window through which teacher can see his originality and teaching talents. Lesson plan is teacher's mental and emotional visualization of classroom activities.

Components of a Lesson plan

Teacher should follow specific steps in writing lesson plans. J.F. Herbart and other educationists after him have emphasized the following steps. These steps are called as Herbartian Formal steps. They are:

1. Preparation or Introduction.
2. Presentation.
3. Comparison or Association.
4. Generalization.
5. Application
6. Recapitulation.

1. Preparation or Introduction

According to J.F. Herbart the mind of the students must be prepared to receive new knowledge. It is first like preparing the land before sowing the seed.

This step should be brief and nothing new to be told to the students. The teacher should ascertain what the students know already related to the topic and should provide a link between the previous knowledge and the new lesson. This step may involve.

- (a) Testing the previous knowledge of the students
- (b) Arousing curiosity by the novelty of experimentation or activity.
- (c) Use of charts, pictures and models.
- (d) Skilful discussion.

This is most important step because “well-begun” is half done.”

2. Presentation

Immediately after the preparation, the aim of the lesson should clearly be stated. This becomes the second step.

In the second step the actual lesson begins. Students get new ideas and knowledge. The teacher presents the subject matter to the students. The students passively listen and learn the ideas told by the teacher. The teacher may demonstrate any experiment, use any aid or do any activities.

3. Comparison or Association

The new ideas or knowledge learnt should be compared and associated with already known ideas and facts. It is felt that knowledge is not like piling up of bricks, but it is like a tree that grows. This step is most important when the teacher is establishing principals or generalizing definitions.

4. Generalization

In most of the science lessons teachers have to arrive at certain generalizations. Formulas, principles or law are to be established. As far as possible the students should draw out the conclusion themselves. Sometimes the student's generalizations may be incomplete or irrelevant. At this time the teacher should guide them to make corrections.

5. Application

A lesson of science will be incomplete if the rules or formulas are not applied to new life situations. It is always the desire of the students to make use of generalizations and to verify whether they really work in new situations. Knowledge becomes clear and meaningful in this stage.

6. Recapitulation

This is the last step in the process. Here the teacher ascertains whether the students have understood and grasped the subject matter or not. It is generally done by one of the following ways:

- (a) Asking suitable questions on the topic taught.
- (b) Applying a short objective type test.
- (c) Asking the students to label the unlabeled sketch.

It should be remembered that these forms of Herbartian steps are not final. These are tentative guidelines. We should not always try to rigidly follow them. Moreover it is not possible to follow all these steps in all types of lessons.

In the modern days these Herbartian steps are included in four steps, which are as follows:

1. Preparation
2. Development
3. Review
4. Assignment

In this you know very well about preparation. The second step development involves the activities of both teacher and students. Teacher helps the students to learn the lesson. Both the students and teacher participate in the development. The teacher is expected to develop the lesson with students' participation. The third step review is equivalent to recapitulation. The fourth step assignment is the homework to be given to the students. These are the four steps involved in the lesson plan.

Advantages of lesson planning

Lesson plan is actually a plan of action. A teacher without lesson plan ends his efforts to keep proper discipline in the class and discouraged with his failures. A teacher with good plans is also tired, but his tiredness is tempered with the joy of satisfaction. The advantage of lesson plan can be listed as follows:

1. It makes the teacher's work regular, well organized and systematic.
2. It prompts confidence and self-reliance in the teacher.
3. It helps the teacher to proceed with particular aims in view and thus makes him conscious of interests and attitudes to be developed in the students.
4. It renders a saving in time, for the students have a better understanding of the subject and develop some desirable attitudes in a specified time, while in the absence of a plan it might have taken more time for the similar understanding.

5. Lesson plans establish proper connections between different lessons of study. Therefore, they provide continuity in the teaching process.
6. It stimulates the teacher to introduce striking questions and illustrations.
7. It provides greater freedom in teaching, for a teacher who has properly planned his lesson, enters the classroom with confidence; without any anxiety, ready to attack the problem and prepared to carry it out like a skilled workman.
8. It helps the teacher to plan the teaching aids to be used in the class, well in advance and also ensure their workability.
9. It avoids wastage of time.

Levels of teaching

We all know that teaching is a purposeful activity. Through teaching the teacher brings a desirable change in the learner. Both the concepts teaching and learning are interrelated to each other. Development of all-round personality of the learner is the final goal of teaching and learning. During teaching an interaction takes place between an experienced person (teacher) and an inexperienced person (student). Here the main aim is to bring change in the behavior of the student.

Teachers teach students at three levels. They have to keep in mind about the developmental stage of the learners so that desired educational objectives can be achieved. These three levels are

1. Memory level: Thoughtless teaching
2. Understanding level: Thoughtful teaching
3. Reflective level: Upper thoughtful level

Memory level of teaching

It is the first and thoughtless level of teaching. It is concerned with memory or mental ability that exists in all living beings. Teaching at memory level is considered to be the lowest level of teaching. At this level,

- the thinking ability does not play any role.
- students only cram the facts, information, formulas and laws that are taught to them.
- the teaching is nothing but learning the subject matter by rote.[Bigge, Morris L(1967)]
- the role of the teacher is prominent and that of the student is secondary.
- The study material is organized and pre-planned. The teacher presents the study material in a sequential order.

Merits of memory level teaching

1. Useful for children at lower classes. This is because of their intellect is under development and they have a rote memory.
2. The role of the teacher is important in this level of teaching and he is free to make choices of subject matter, plan it and can present it at will.
3. The knowledge acquired at memory level teaching forms a basis for the future i.e. when student's intelligence and thinking is required.
4. Memory level teaching acts as the first step for understanding and reflective levels of teaching. It is pre-requisite for understanding level teaching.

Understanding level

Understanding something is to perceive the meaning, grasp the idea and comprehend the meaning. In the field of Education and Psychology, the meaning of '*understanding*' can be classified as

- seeing the total use of facts
- seeing relationship
- a generalized insight

The teaching at the understanding level is of a higher quality than the one at the memory level. It is more useful and thoughtful from the point of view of mental capabilities. At this level of teaching, the teacher explains the student about the relationship between principles and facts and teach them how these principles can be applied. Memory level teaching barrier is essential to be crossed for this level of teaching.

As compared to memory level teaching, the understanding level teaching has greater merit. This enables students to have complete command over subject material. In the understanding level role of the teacher is more active. The students at this level are second any. At this level, no cramming is encouraged. The new knowledge acquired at this level is related to the earlier knowledge gained. A generalization is made on the basis of facts and the facts are used in the new situations.

Merits of the understanding level of teaching

1. At this level of teaching students to make use of their thinking abilities.
2. Knowledge acquired at this level forms the basis of the reflective level of teaching.
3. Here the teacher presents subject matter before the students in an organized and sequential form. The new knowledge acquired is related to to the previously acquired knowledge.
4. Here the students do not learn by rote. Here they learn by understanding the facts and information and their use and purpose.

Demerits of the understanding level of teaching

1. Teaching at this level is subject centered. There is no interaction between the teacher and students at this level.
2. This type of teaching mastery ie emphasized.

Reflective level of teaching

This level is also known as introspective level. Reflecting on something means giving careful thought to something over a period of time. It also means thinking deeply about something.

Reflective level of teaching is considered to be the highest level at which teaching is carried out.

- It is highly thoughtful and useful.
- A student can attain this level only after going through memory level and understanding level.
- Teaching at the reflective level enables the students to solve the real problems of life.
- At this level, the student is made to face a real problematic situation. The student by understanding the situation and using his critical abilities succeeds in solving the problem.
- At this level emphasis is laid on identifying the problem, defining it and finding a solution to it. The student's original thinking and creative-abilities develop at this level.
- The role of the teacher in this level of teaching is democratic. He does not force knowledge on the students but develops in their talents and capabilities.
- The role of the students is quite active.
- reflective level of teaching is that which is problem-centered and the student is busy in original imagination.

Merits of reflective level teaching

1. The teaching at this level is not teacher-centered or subject-centered, it is learner-centered.

2. There is an interaction between the teacher and the taught at the reflective level teaching.
3. At this level, teaching is appropriate for the higher class.
4. At this level, teaching is highly thoughtful and useful than the teaching at the memory or understanding level.

Demerits of reflective level teaching

1. Not suitable for small children at the lower level of teaching. It is suitable only for mentally matured children
2. At this level, the study material is neither organized nor pre-planned. Therefore students cannot acquire systematic and organized knowledge of their study courses.

UNIT PLAN

Unit Plan

“A unit may be defined as a means of organizing materials for instructional purposes which utilizes significant subject matter content, involve pupils learning activities through active participation intellectually and physically and modifies the pupils behavior to the extent that he is able to cope with new problems and situations more competently”. **H.C. Morrison**

What is a unit?

A unit is a large subdivision of subject matter with a common fabric of knowledge. The unit is not just blocks of subject matter, but is composed of both method and content. Thus, a unit organizes instruction and increases the probability that instruction will be presented in a cohesive, meaningful and logic way. A properly planned unit integrates many type of activities, some of which provide new information and others help pupils evaluate and retain this information. Units of break up a course into meaningful segments that is larger than lesson plans. They are organized around specific topics

so they are neither a block of subject matter nor a series of independent lessons, but represent a careful organization of subject matter and learning experiences. So a unit can be treated as a 'compound' of lessons and not a 'mixture' of lessons.

Definitions of a Unit

Burton: 'the important thing to provide a combination of subject matter and processes which will have real meaning for the learner which will aid him in continuously integrating his learning is through a unit'.

Preston: 'A unit is as large a block of related subject matter as can be over viewed by the learner'.

Stanford: 'A unit is an outline of carefully selected subject matter which has been isolated because of its relationship to pupil's needs and interests'.

Characteristics of a Good Unit

- It should keep in view, the needs, the capabilities and the interest of the pupil
- It should take into account the previous experience and background of the pupil
- It should provide for new experiences which the students have not done before
- The length of the unit should maintain interest of the pupil till the last
- The material of the unit should consist of familiar and related topics and not as remote and strange one
- It should be related to social and physical environment of the pupil
- It should help to anticipate and satisfy some of the future needs of the pupil

- It should be a part of the sequence that permits growth from year to year
- It should be a results of the co-operative planning of the teacher as far as possible
- It should provide the basis for its evaluation
- It should be flexible enough to provide individual differences
- It should permit a variety of field trips, experiments, demonstrations, and projects etc.
- It should be practicable in the given setting

Steps in Unit Planning

1. Content analysis (the What of the unit)
2. Objectives with specifications (the Why of the unit)
3. Learning activities (the How of the unit)
4. Testing procedures (evidence of achievement)

1. Content analysis

In unit planning emphasis is placed on analyzing the content into terms, facts, concepts, situations, processes, generalizations, principles, laws etc. the analysis helps the teacher to get a thorough in depth of the subject understanding and this also increases the confidence of the teacher.

2. Objectives and specifications

After analyzing the content, teacher should identify the general and specific objectives of the content.

3. Learning activities

Learning is not a pouring in process, but a gradual process that comes about as a result of experience. Activities like field trips,

experiments, demonstrations and projects can be used in different settings. The experience can be backed up with reference books films and slides. Keeping in mind of the individual differences, the psychology of learning, the content and objectives, suitable learning activities can be planned to which the students will be exposed during the course of the unit.

4. Testing procedures

The last step is the choice of suitable evaluation tools and techniques through which teacher can evaluate the content coverage and teaching method used.

Format of a Unit Plan

1. -----
2. -----
3. -----

Sl. No.	Concepts	Process skills	Activities/strategies	Learning materials	Product	Evaluation	No. of Periods

Advantages of Unit Planning

1. It is establishes general as well as specific aims of teaching.

2. It breaks up the entire work into smaller sections, small enough so that pupils can easily grasp the scope of these during a brief overview. Short tasks are easily completed than long ones.
3. It helps to cater the needs, nature and aptitude of the students.
4. It is economical in terms of time.
5. Since several activities are involved it helps to develop the skills in the students.
6. It develops self confidence among students because it provides opportunities for meaningful experience wherein they can organize and review their learning.
7. It gives an overall view to handle each and every lessons as the unit structure.

MODEL LESSON PLAN - BOTANY

Name of the School:

Name of the Student

Teacher:

Standard: IX

Name of the Guide

Teacher:

Subject: Biology

Date:

Topic: The structure of a cell

Time: 45 Minutes

Instructional Objectives: The Students

- Define the basic unit of all the living organisms.
- Identify the outer cell wall of the plant cell.
- Explain the cell wall is made up of cellulose.
- Describe the matter inside the cell wall is protoplasm.
- Identify protoplasm which is divided into cytoplasm and nucleus.
- Explain cytoplasm is a viscous fluid.
- Discuss the reasons for the presence of cell membrane in animal cell.
- List out the cell organelles.
- Differentiate between plant and animal cell.

Instructional resources required:

1. Slides of cells of different plants and slide projector.
2. Charts of plant cell and animal cell.
3. Slide of animal cell

Previous Knowledge of learners:

The teacher ask questions regarding cell, plants and animals and bring out the previous knowledge of the student about the cell.

Pupils answers the following questions:

- What is a living organism?
- What is a non-living organism?
- What is the difference between living and non-living organism?
- What are the organs found in man?
- What constitute the organs?
- What constitute the tissues?

Content	Specification of behavioural outcomes	Learning Experiences	Evaluation
Cell	define	<p>The teacher defines the basic unit of all the living organisms as cell.</p> <p>The student understands that the cell is the fundamental unit of living organisms</p>	<p>What is the fundamental unit of life?</p> <p>Define a cell?</p>
Cell wall	identify	<p>The teacher ask the student to identify that the plant cell is surrounded by the outer cell wall.</p> <p>The student identifies the outer cell wall of the plant cell from the slide.</p>	<p>What is the boundary of the plant cell?</p>
Cellulose	explain	<p>The teacher explains that the cell wall is made up of cellulose in plant.</p> <p>The student identifies the cellulose from the chart.</p>	<p>What does the cell wall made up of?</p>
Protoplasm	describe	<p>The teacher describes that the matter inside the cell wall is protoplasm.</p> <p>The students understand that the protoplasm is found within the cell wall.</p>	<p>What is a cell wall?</p> <p>What is the name for the matter inside the cellwall?</p>
Cytoplasm and the nucleus	Identify	<p>The teacher describes that protoplasm is divided into cytoplasm and nucleus.</p>	<p>What parts do you find with in the cell wall?</p>

		The student identifies from the chart that protoplasm consists of two parts, the cytoplasm and the nucleus	
Cytoplasm	explain	<p>The teacher explains that cytoplasm is a viscous fluid that fills the major part of cell. The nucleus is a spherical body found embedded in the cytoplasm. It is deeper than the cytoplasm</p> <p>The student explains cytoplasm among themselves and identifies nucleus and cytoplasm from the chart.</p>	<p>What is the viscous fluid called?</p> <p>What is the central spherical body called?</p> <p>Is the spherical body denser than the fluid?</p>
Cell membrane.	discuss	<p>The teacher discusses the reasons for the presence of cell membrane in animal cell.</p> <p>The student discusses among themselves that the animal cell does not possess a cell wall but possess only cell membrane.</p>	What is a cell membrane?
Cell organelles	list	<p>The teacher lists out the cell organelles and small vacuoles in the cytoplasm.</p> <p>The student lists out the cell organelles and identifies Centrosome, Golgi bodies, Mitochondria, endoplasmic reticulum in the cytoplasm from the chart. Many small vacuoles are also seen.</p>	<p>Where is centrosome?</p> <p>List out the cell organelles.</p>
Plant cell and animal cell	differentiate	<p>The teacher explains the differences between plant and animal cell.</p> <p>The student differentiates that the plant cell possesses cell wall, chloroplast and many large</p>	<p>Which cell possesses chloroplast?</p> <p>Where do you find large vacuoles?</p> <p>Where do you find cell</p>

		vacuoles. Animal cell membrane, small and a few vacuoles but no chloroplast.	membrane?
Important points of the topic	Summarize draw	The teacher summarizes the important points of the topic and the student practices to draw the plant and animal cell structure.	Draw the diagram of animal and plant cell? Label the parts. What is its importance?

Follow up activities:

1. Draw and label diagram of a plant cell?
2. Describe the structure of an animal cell with neat labelled diagram.

Name of the Guide Teacher
Student Teacher

Name of the